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REMARKS

Disposition of Claims in Office Action Summary

Applicants respectfully note that the Office Action Summary does not accurately reflect Applicants' cancellation of claim 6 in their 11/14/05 Preliminary Amendment. The pending claims, currently listed as "1, 3-8 and 10-23" should be "1, 3-5, 7, 8, and 10-23". And the rejected claims, currently listed as "1, 4-8, 10, 11, 15-19, 21 and 22" should be "1, 4, 5, 7, 8, 10, 11, 15-19, 21, and 22".

Support for Claim Amendments

Article claim 1 has been amended to recite that the reflective article comprises "a protective layer comprising the plasma decomposition product of an oxidant and a reactant gas selected from silanes, disilanes, and organosilicon compounds; wherein the reflective layer is interposed between the haze-prevention layer and the protective layer; and wherein the protective layer is in contact with the reflective metal layer". Support for this amendment may be found in claims 16 and 22 and paragraph [0061] of the application as filed, as well as in claims 1 and 7 of U.S. Patent No. 6,110,544 to Yang et al., which was incorporated by reference in paragraphs [0053] and [0072] of the application as filed.

Article claim 19 and method claim 21 have been amended to make changes analogous to those discussed for claim 1.

Claim 16 has been amended to reflect the addition of the protective layer to claim 1. This amendment is supported by claim 16 as filed. Similarly, claim 22 has been amended to reflect the addition of the protective layer to claim 21. This amendment is supported by claim 22 as filed.

Nonstatutory Double Patenting Rejection Over Iacovangelo '032

Claims 1, 4, 5, 7, 8, 10, 11, and 15-18 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-38 of U.S. Patent No. 6,420,032 to Iacovangelo ("Iacovangelo '032"). 11/29/05 Office Action,

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page 3, paragraph no. 5. Applicants respectfully traverse this rejection to the extent it may be applicable to the claims as amended.

The three independent claims of Iacovangelo '032, claims 1, 17, and 35, are reproduced below.

1. A multilayer structure, comprising: a polymeric substrate; a transparent metal layer on the substrate; and a transparent metal oxide layer including at least one compound selected from the group consisting of ZnO, indium doped zinc oxide, and aluminum doped zinc oxide, wherein the metal oxide layer is in direct contact with the metal layer, and the adhesion strength between the metal oxide layer and the substrate is a) 2.07 MPa or greater; and b) decreases by no more than 10% after being submerged for 4 days in distilled water at 65 degrees C.

17. A method of coating a polymeric substrate, comprising the steps of: forming a transparent metal layer over the substrate; and forming a transparent metal oxide layer including at least one compound selected from the group consisting of ZnO, indium doped zinc oxide, and aluminum doped zinc oxide, wherein the metal oxide layer is in direct contact with the metal layer, and the adhesion strength between the metal oxide layer and the substrate is a) 2.07 MPa or greater; and b) decreases by no more than 10% after being submerged for 4 days in distilled water at 65 degrees C.

35. A transparent window usable in a vehicle, a building, a display device or an apparatus, comprising a polycarbonate, polycarbonate, polyethersulfone or polyetherimide substrate; an infrared radiation reflection layer comprising aluminum or silver; and an ultraviolet radiation absorption layer including at least one compound selected from the group consisting of ZnO, indium doped zinc oxide, and aluminum doped zinc oxide, wherein the ultraviolet radiation absorption layer is in direct contact with the infrared radiation reflection layer, and the adhesion strength between the ultraviolet radiation absorption layer and the substrate is a) 2.07 MPa or greater; and b) decreases by no more than 10% after being submerged for 4 days in distilled water at 65 degrees C.

Each of these independent claims requires some type of polymeric substrate, a metal layer on the substrate, and a transparent metal oxide layer on and in direct contact with the metal layer. A key feature of the invention is the use of the metal layer to promote attachment of the metal oxide layer to the substrate. Iacovangelo '032 abstract. So, when a cross section of the layered structure is viewed with the substrate at the bottom, the

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metal oxide layer is always directly on top of the metal layer. Although other layers in the structure may comprise "a plasma polymerized organosilicon" (see, especially, claims 25-27, 36, and 37), none of these layers may be on top of the metal layer because the independent claims make clear that the metal oxide layer must be on top of the metal layer.

Applicants respectfully assert that their claim 1 is patentably distinct from claims 1-38 of Iacovangelo '032 because the Iacovangelo '032 claims do not teach or suggest Applicants' claim 1 protective layer. Establishing a *prima facie* case of obviousness requires that all limitations of the claim be taught or suggested by the prior art. *See, e.g.*, MPEP 2143.03; *CFMT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003); *In re Royka*, 490 F.2d 981, 985 (C.C.P.A. 1974). As noted above, Applicants' claim 1 has been amended to recite the presence of "a protective layer comprising the plasma decomposition product of an oxidant and a reactant gas selected from silanes, disilanes, and organosilicon compounds; wherein the reflective layer is interposed between the haze-prevention layer and the protective layer; and wherein the protective layer is in contact with the reflective metal layer". When all the limitations of Applicants' claim 1 are considered, and when the layer order of the claim 1 article is envisioned from a perspective in which the substrate is on the bottom, it is clear that the claim 1 protective layer must be on top of and in direct contact with the reflective metal layer. Iacovangelo '032 does not teach or suggest such a protective layer. Instead, the independent claims of Iacovangelo '032 make clear what when the structures in those claims are envisioned from a perspective in which the substrate is on the bottom, the metal oxide layer alternately termed the "transparent metal oxide layer" (claims 1 and 17) or the "ultraviolet radiation absorption layer" (claim 35) must be directly on top of the metal layer. Thus, to the extent that Iacovangelo '032 teaches layers that may contain a "plasma polymerized organosilicon" (see, e.g., claims 26, 27, 36, and 37), those layers cannot be on top of and in direct contact with the reflective metal layer, as required for Applicants' claim 1 protective layer.

Claims 1-38 of Iacovangelo '032 thus fail to teach or suggest Applicants' claim 1 protective layer. Accordingly, claims 1-38 of Iacovangelo '032 cannot support a *prima*

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facie case of obviousness against Applicants' claim 1. Given that claims 4, 5, 7, 8, 10, 11, and 15-18 each ultimately depend from claim 1, they, too, are patentable over claims 1-38 of Iacovangelo '032. Applicants therefore respectfully request the reconsideration and withdrawal of the rejection of claims 1, 4, 5, 7, 8, 10, 11, 15-18 under the judicially created doctrine of obviousness-type double patenting over claims 1-38 of Iacovangelo '032.

Claim Rejection Under 35 U.S.C. § 102(e) Over Iacovangelo '032

Claims 1, 7, 8, 10, 11, 16, 17, 19, 21, and 22 are rejected under 35 U.S.C. § 102(e), as being anticipated by Iacovangelo '032. 11/29/05 Office Action, page 4, paragraph no. 7. Applicants respectfully traverse this rejection to the extent it may be applicable to the claims as amended.

Iacovangelo '032, titled "Adhesion Layer for Metal Oxide UV Filters", generally describes an adhesion promoting layer formed between a transparent substrate and a metal oxide layer to prevent the metal oxide layer from delaminating from the substrate. Iacovangelo '032 abstract. Preferably, the substrate is a transparent polycarbonate, the adhesion promoting layer is a thin, transparent Al or Ag layer, and the metal oxide layer is ZnO, AZO or IZO UV radiation absorption layer. *Id.* The layers are preferably deposited by arc plasma deposition or by sputtering. *Id.* The claims of Iacovangelo '032 are discussed above. Other relevant sections of Iacovangelo '032 include Figures 3A-3B, and the accompanying discussion at column 6, lines 13-66. These passages describe various layers that may comprise "a plasma polymerized organosilicon", but, consistent with the claims of Iacovangelo '032, such layers cannot be above and in direct contact with the adhesion promoting metal layer because the UV absorbing metal oxide layer must be above and in direct contact with the adhesion promoting metal layer.

Applicants respectfully assert that their claim 1 is patentable over Iacovangelo '032 because Iacovangelo '032 does not teach or suggest Applicants' claim 1 protective layer. Anticipation requires that all of the elements of the claim be found within a single prior art reference. *Scripps Clinic & Research Foundation v. Genentech, Inc.*, 927 F.2d 1565, 1576 (Fed. Cir. 1991). As noted above, Applicants' claim 1 requires that the

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protective layer comprises "the plasma decomposition product of an oxidant and a reactant gas selected from silanes, disilanes, and organosilicon compounds" and be on top of and in direct contact with the reflective metal layer. Iacovangelo '032 does not teach such a protective layer. In particular, the layers of Iacovangelo '032 that may comprise "a plasma polymerized organosilicon" cannot be on top of and in direct contact with the reflective metal layer, because that position is necessarily occupied by the UV absorbing metal oxide layer. Iacovangelo '032 thus fails to teach all limitations of Applicants' claim 1 and therefore cannot anticipate Applicants' claim 1. Given that claims 7, 8, 10, 11, 16, 17, 19, 21, and 22 each include or further limit all the limitations of claim 1, Applicants respectfully request the reconsideration and withdrawal of the rejection of claims 1, 7, 8, 10, 11, 16, 17, 19, 21, and 22 under 35 U.S.C. § 102(c) over Iacovangelo '032.

Claim Rejection Under 35 U.S.C. § 102(b) Over Iacovangelo '694

Claims 1, 7, 8, 10, 11, 16, 17, 19, 21, and 22 are rejected under 35 U.S.C. § 102(b), as allegedly anticipated by U.S. Patent No. 6,261,694 to Iacovangelo ("Iacovangelo '694"). 11/29/05 Office Action, page 5, paragraph no. 8. Applicants respectfully traverse this rejection to the extent it may be applicable to the claims as amended.

Iacovangelo '694 generally describes an infrared radiation reflecting and ultraviolet radiation absorbing coating formed over a polymeric substrate. Iacovangelo '694 abstract. The examiner has called attention, inter alia, to Figure 3A-D. Figure 3D includes three different layers that may comprise a "plasma polymerized organosilicon". These layers are the "interlayer 6", the "interlayer 7", and the "abrasion resistant layer 5". When a metallic "adhesion promoting layer 8" is present, it is "between the substrate 1 and the UV absorbing layer 2 as shown in FIG. 3I" or "directly below UV absorbing layer 2 in structures shown in FIGS. 3A-3E". Iacovangelo '694, column 7, lines 41-52. Note that the "UV absorbing layer 2" comprises zinc oxide (ZnO), aluminum zinc oxide (AZO), or indium zinc oxide (IZO). Iacovangelo '694, column 2, lines 15-22. In no

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instance is a layer comprising a "plasma polymerized organosilicon" on top of and in direct contact with the metallic "adhesion promoting layer 8".

Applicants respectfully assert that their claim 1 is not anticipated by Iacovangelo '694 because Iacovangelo '694 does not teach Applicants' claim 1 protective layer. As noted above, Applicants' claim 1 requires that the protective layer comprises "the plasma decomposition product of an oxidant and a reactant gas selected from silanes, disilanes, and organosilicon compounds" and be on top of and in direct contact with the reflective metal layer. Iacovangelo '694 does not teach such a protective layer. In the structures of Iacovangelo '694 that may include a metal layer ("adhesion promoting layer 8") and one or more layers comprising a "plasma polymerized organosilicon", the layers comprising a "plasma polymerized organosilicon" are never on top of and in direct contact with the metal layer. Iacovangelo '694 therefore fails to teach Applicants' claim 1 protective layer.

Since claims 7, 8, 10, 11, 16, 17, 19, 21, and 22 each include or further limit all the limitations of claim 1, Applicants respectfully request the reconsideration and withdrawal of the rejection of claims 1, 7, 8, 10, 11, 16, 17, 19, 21, and 22 under 35 U.S.C. § 102(b) over Iacovangelo '694.

Claim Rejection Under 35 U.S.C. § 103(a) Over Iacovangelo '694

Claims 4, 5, 15, and 18 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Iacovangelo '694. 11/29/05 Office Action, page 6, paragraph no. 10. Applicants respectfully traverse this rejection to the extent it may be applicable to the claims as amended.

Applicants respectfully assert that their claim 1 is patentable over Iacovangelo '694 because Iacovangelo '694 does not teach or suggest Applicants' claim 1 protective layer. For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a prima facie case of obviousness. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). Establishing a prima facie case of obviousness requires that all limitations of the claim be taught or suggested by the prior art. See, e.g., MPEP 2143.03;

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CFMT, Inc. v. Yieldup Intern. Corp., 349 F.3d 1333, 1342 (Fed. Cir. 2003); *In re Royka*, 490 F.2d 981, 985 (C.C.P.A. 1974). As noted above, Applicants' claim 1 requires that the protective layer comprises "the plasma decomposition product of an oxidant and a reactant gas selected from silanes, disilanes, and organosilicon compounds" and be on top of and in direct contact with the reflective metal layer. Iacovangelo '694 does not teach or suggest such a protective layer. In the structures of Iacovangelo '694 that may include a metal layer ("adhesion promoting layer 8") and one or more layers comprising a "plasma polymerized organosilicon", the layers comprising a "plasma polymerized organosilicon" are never on top of and in direct contact with the metal layer. So, Iacovangelo '694 does not teach or suggest a layer that satisfies the compositional and positional limitations of Applicants' claim 1 protective layer.

Furthermore, there would be no motivation for one skilled in the art to modify the Iacovangelo '694 layer order to obtain a layer that satisfies the compositional and positional limitations of Applicants' claim 1 protective layer. The fact that a prior art reference can be modified does not make such a modification obvious. *In re Gordon*, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984). And an examiner's proposed modification may actually be discouraged by a reference if that proposed modification interferes with intended function of the reference invention. *Id.* Note that the purpose of metallic "adhesion promoting layer 8" in Iacovangelo '694 is to promote adhesion of the ZnO/AZO/IZO "UV absorbing layer 2" to the substrate. See, e.g., Iacovangelo '694, col. 3, lines 43-53. In other words, for the metallic adhesion promoting layer 8 to carry out its intended function, it must be directly below and in contact with a UV absorbing layer comprising ZnO or AZO or IZO. So, rearranging the layer order of Iacovangelo '694 to place a plasma-polymerized organosilicon layer over and in direct contact with a metallic "adhesion promoting layer 8" would defeat the intended function of the metallic adhesion promoting layer. Iacovangelo '694 would therefore discourage one skilled in the art from any proposed modification that places a plasma-polymerized organosilicon layer over and in direct contact with a metallic "adhesion promoting layer 8".

To summarize, Iacovangelo '694 fails to teach or suggest Applicants' claim 1 protective layer, and one skilled in the art would be discouraged from rearranging the

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Iacovangelo '694 layer order to create such a layer. Iacovangelo '694 thus cannot support a *prima facie* case of obviousness against Applicants' claim 1, and claim 1 is therefore patentable over Iacovangelo '694.

Given that claims 4, 5, 15, and 18 each depend ultimately from and further limit claim 1, they, too, are patentable over Iacovangelo '694. Accordingly, Applicants respectfully request the reconsideration and withdrawal of the rejection of claims 4, 5, 15, and 18 under 35 U.S.C. § 103(a) over Iacovangelo '694.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance is requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 50-3619 maintained by Assignee.

Respectfully submitted,

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